

CLAIMS

What is claimed is:

1. A motion platform for providing periodic acceleration to a subject, comprising:
 - 2 a box frame providing a foundation of the motion platform, said box frame having four wheel tracks located substantially at the four corners of the top portion of the box frame;
 - 3 a drive module having four track wheels located substantially at the four corners of the top portion of the drive module, wherein said track wheels extend from the top portion of the drive module and rest in the wheel tracks of the box frame, whereby the drive module sits within the box frame and is operably movable relative to said box frame;
 - 4 a support connected to said drive module, said support comprising:
 - 5 a planar surface for supporting the subject, said planar surface having a head end and a foot end; and
 - 6 a footboard connected at the foot end of the planar surface, said footboard rising perpendicularly to the planar surface and having cast shoes for securing the feet of the subject to the support; and
 - 7 a motor secured to said box frame and connected to said drive module for providing periodic acceleration to the subject by moving in a line parallel to the planar surface of the support while the subject is secured to said support by said cast shoes on said footboard, and the periodic acceleration is alternately in the direction of the head end, and the foot end, of the planar surface, whereby the motion platform adds pulses to the fluid filled channels of the body of the subject;
 - 8 wherein the drive module is horizontally displaced a fixed distance.

1 2. The motion platform of claim 1, wherein the movement of the drive module is substantially sinusoidal.

1 3. The motion platform of claim 1, wherein the fixed displacement of the drive module is about 1 cm
2 to 5 cm.

1 4. The motion platform of claim 1, wherein the fixed displacement of the drive module is about 2.5
2 cm.

1 5. The motion platform of claim 1, wherein the speed of the drive module is about 120 to 160 cycles
2 per minute.

1 5. The motion platform of claim 1, wherein the speed of the drive module is about 140 cycles per
2 minute.

1 7. The motion platform of claim 1, wherein the movement of the drive module has a force in a range
2 of about 0.1 g to about 0.4 g.

1 8. The motion platform of claim 1, wherein the movement of the drive module has a force in a range
2 of about 0.15 g to about 0.2 g.

1 9. The motion platform of claim 1, wherein the motion platform is preset based on the size of the
2 subject who will use the motion platform.

1 10. The motion platform of claim 9, wherein the subject is obese and the motion platform is preset
2 such that the movement of the drive module has a force of about 0.17 g.

1 11. The motion platform of claim 9, wherein the subject has normal body weight and the motion
2 platform is preset such that the movement of the drive module has a force of about 0.17 g.

1 12. The motion platform of claim 1, wherein the motion platform also serves as a bed.

1 13. The motion platform of claim 1, wherein the motion platform also serves as a sofa.

1 14. The motion platform of claim 1, wherein the planar surface of the support can fit more than one
2 subject.

1 15. The motion platform of claim 1, wherein the motor has a shaft which produces rotary motion, said
2 rotary motion being converted to horizontal motion by a worm gear, said worm gear having an output shaft
3 secured to the drive module to thereby provide horizontal displacement.

1 16. A motion platform for providing periodic acceleration to a subject, comprising:

2 a box frame providing a foundation of the motion platform;

3 a drive module adjoining said box frame, said drive module operably movable relative to said
4 box frame; and

5 a support connected to said drive module, said support comprising:

6 a planar surface for supporting the subject, said planar surface having a head end
7 and a foot end; and

8 a footboard connected at the foot end of the planar surface, said footboard rising
9 perpendicularly to the planar surface and having cast shoes for securing the
10 feet of the subject to the support;

11 wherein said drive module provides periodic acceleration to the subject by moving in a line
12 parallel to the planar surface of the support while the subject is secured to said support by
13 said cast shoes on said footboard, and the periodic acceleration is alternately in the
14 direction of the head end, and the foot end, of the planar surface, whereby the motion
15 platform adds pulses to the fluid filled channels of the body of the subject.

1 17. The motion platform of claim 16, wherein the provided periodic acceleration is used as a stand-
2 alone treatment or in conjunction with other therapeutic and/or preventative modalities.

1 18. The motion platform of claim 16, wherein the provided periodic acceleration is used to treat and/or
2 to prevent cancers in tissues of the subject.

1 19. The motion platform of claim 16, wherein the provided periodic acceleration causes release of nitric
2 oxide from the vascular endothelium of the subject through activation of endothelial nitric oxide synthase
3 (eNOS) which in turn suppresses nuclear factor kappa beta.

1 20. The motion platform of claim 16, wherein the provided periodic acceleration serves as a means for
2 preconditioning, conditioning and/or postconditioning tissues of the body of the subject.

1 21. The motion platform of claim 20, wherein treatment with periodic acceleration before, during, or
2 after athletic performance prevents and/or treats tissue damage, reduces systemic stress, increases
3 athletic performance, and/or prevents/treats any of the problems caused by strenuous athletic activity.

1 22. The motion platform of claim 20, wherein regular treatment with periodic acceleration as a regimen
2 for the athlete prevents and/or treats tissue damage, reduces systemic stress, increases athletic
3 performance, and/or prevents/treats any of the problems caused by strenuous athletic activity.

1 23. The motion platform of claim 20, wherein pretreatment with periodic acceleration improves athletic
2 performance by preconditioning a body tissue of the athlete.

1 24. The motion platform of claim 20, wherein pretreatment with periodic acceleration mitigates skeletal
2 muscular cramps and/or helps prevent muscle strains during an athletic event.

1 25. The motion platform of claim 20, wherein pretreatment with periodic acceleration mitigates and/or
2 helps prevent delayed onset muscular soreness (DOMS) and involuntary muscle cramps and spasms
3 immediately following the athletic event and/or delayed until the sleeping hours.

1 26. The motion platform of claim 20, wherein pretreatment with periodic acceleration is used to treat
2 exercise-induced bronchospasm in an athlete.

1 27. The motion platform of claim 20, wherein pretreatment with periodic acceleration helps to reduce
2 and/or prevent susceptibility of athletes to viral and bacterial infections.

1 28. The motion platform of claim 20, wherein the pretreatment, treatment, and/or post-treatment with
2 periodic acceleration treats or prevents cramps, aches, soreness, spasms, and other maladies brought on
3 by exercise and/or other athletic activity.

1 29. The motion platform of claim 16, wherein treatment using periodic acceleration assists or replaces
2 the use of corticosteroids and non-steroidal anti-inflammatory drugs (NSAIDs) in management of pain,
3 injury, muscle soreness, strains, and contusions in athletes.

1 30. The motion platform of claim 16, wherein the provided periodic acceleration causes release of nitric
2 oxide from the vascular endothelium of the subject through activation of endothelial nitric oxide synthase
3 (eNOS) that in turn scavenges reactive oxygen species thereby diminishing or eliminating oxidative stress.

1 31. The motion platform of claim 16, wherein the periodic acceleration provided by a motion platform to
2 the subject causes release of nitric oxide from the vascular endothelium of the patient through activation of
3 endothelial nitric oxide synthase (eNOS) which in turn suppresses the activity of inducible nitric oxide
4 synthase (iNOS).

1 32. The motion platform of claim 31, wherein the periodic acceleration treats and/or prevents cramps,
2 aches, soreness, spasms, and the like at least because the suppression of nuclear factor kappa beta
3 diminishes IL-1beta, IL-6, tumor necrosis factor and other inflammatory cytokines and adhesion molecules.

1 33. The motion platform of claim 31, wherein the periodic acceleration treats and/or prevents cramps,
2 aches, soreness, spasms, and the like at least because the suppression of iNOS may diminish IL-1beta, IL-
3 6, tumor necrosis factor and other inflammatory cytokines and adhesion molecules.

1 34. The motion platform of claim 16, wherein treatments of periodic acceleration are used in weight
2 control of the subject.

1 35. The motion platform of claim 16, wherein treatments of periodic acceleration are used to
2 ameliorate metabolic syndrome, to improve sports performance, and/or to improve skeletal muscle
3 pathology associated with the cachexia of COPD and cancers in weight control of the subject.

1 36. The motion platform of claim 16, wherein periodic acceleration is used to promote ventricular
2 remodeling.

1 37. The motion platform of claim 16, wherein periodic acceleration is used to treat and/or prevent atrial
2 fibrillation.

1 38. The motion platform of claim 16, wherein periodic acceleration is used to treat and/or prevent
2 complications from coronary bypass surgery.

1 39. The motion platform of claim 16, wherein periodic acceleration is used to treat and/or prevent
2 obstructive sleep apnea syndrome commonly observed in patients with coronary artery disease.

1 40. The motion platform of claim 16, wherein periodic acceleration is used to treat and/or prevent
2 cognitive deficits, learning deficits, and/or behavioral abnormalities in early cognitive impairment.

1 41. The motion platform of claim 16, wherein periodic acceleration is used to treat and/or prevent
2 Alzheimer's disease, vascular dementias, Parkinson's disease, amyotrophic lateral sclerosis, Huntington's
3 chorea, Wilson's disease, suprabulbar palsy, and/or Tourette syndrome.

1 42. The motion platform of claim 16, wherein periodic acceleration is used to treat and/or prevent
2 cardiac allograft vasculopathy.

1 43. The motion platform of claim 16, wherein periodic acceleration is used to promote angiogenesis in
2 ischemic tissues.

1 44. The motion platform of claim 16, wherein periodic acceleration is used to manage hereditary
2 hemorrhagic telangiectasia.

1 45. The motion platform of claim 16, wherein periodic acceleration is used to treat and/or prevent
2 migraine.

1 46. The motion platform of claim 16, wherein periodic acceleration is used to treat the inflammation
2 attendant with prion diseases.

1 47. The motion platform of claim 16, wherein periodic acceleration is used to manage the aging
2 process.

1 48. The motion platform of claim 16, wherein periodic acceleration is used to manage Sjogren's
2 syndrome.

1 49. The motion platform of claim 16, wherein periodic acceleration is used to manage the chronic
2 phase of Lyme disease.

1 50. The motion platform of claim 16, wherein periodic acceleration is used to treat Gulf War syndrome.

1 51. The motion platform of claim 16, wherein periodic acceleration is used to improve mucociliary
2 clearance and surfactant production, and to minimize lung damage associated with usual positive pressure
3 mechanical ventilation.

1 52. The motion platform of claim 16, wherein periodic acceleration is used to treat patients who have
2 corticosteroid resistance and asthma or corticosteroid resistance and inflammatory bowel disease.

1 53. The motion platform of claim 16, wherein periodic acceleration is used to treat chronic otitis media.

1 54. The motion platform of claim 16, wherein periodic acceleration is used to promote nail regeeration.

1 55. The motion platform of claim 16, wherein periodic acceleration is used to in conjunction with cell
2 free hemoglobin transfusion in order to treat and/or prevent a nitric oxide deficit.

1 56. The motion platform of claim 16, wherein periodic acceleration is used to treat radiation injuries.

1 57. A method of medical treatment of a subject comprising the step of:
2 providing periodic acceleration to a body of the subject in order to externally and non-invasively
3 add pulses to the body's fluid-filled channels over the body's own pulse;
4 wherein the periodic acceleration is provided by a motion platform comprised of a support on a
5 drive module held by, and operably movable relative to, a box frame, wherein the subject
6 is set on the support, and wherein the drive module is moved relative to the box frame to
7 provide periodic acceleration to the body of the subject.

1 58. The method of claim 57, wherein a motor secured to said box frame moves the drive module to
2 provide the periodic acceleration of the subject.

1 59. The method of claim 57, wherein the provided periodic acceleration is used to treat and/or to
2 prevent cancers in tissues of the subject.

1 60. The method of claim 57, wherein the provided periodic acceleration serves as a means for
2 preconditioning, conditioning and/or postconditioning tissues of the body of the subject.

1 61. The method of claim 60, wherein treatment with periodic acceleration before, during, or after
2 athletic performance prevents and/or treats tissue damage, reduces systemic stress, increases athletic
3 performance, and/or prevents/treats any of the problems caused by strenuous athletic activity.

1 62. The method of claim 60, wherein regular treatment with periodic acceleration as a regimen for the
2 athlete prevents and/or treats tissue damage, reduces systemic stress, increases athletic performance,
3 and/or prevents/treats any of the problems caused by strenuous athletic activity.

1 63. The method of claim 60, wherein pretreatment with periodic acceleration improves athletic
2 performance by preconditioning a body tissue of the athlete.

1 64. The method of claim 60, wherein pretreatment with periodic acceleration mitigates skeletal
2 muscular cramps and/or helps prevent muscle strains during an athletic event.

1 65. The method of claim 60, wherein pretreatment with periodic acceleration mitigates and/or helps
2 prevent delayed onset muscular soreness (DOMS) and involuntary muscle cramps and spasms
3 immediately following the athletic event and/or delayed until the sleeping hours.

1 66. The method of claim 60, wherein pretreatment with periodic acceleration is used to treat exercise-
2 induced bronchospasm in an athlete.

1 67. The method of claim 60, wherein pretreatment with periodic acceleration helps to reduce and/or
2 prevent susceptibility of athletes to viral and bacterial infections.

1 68. The method of claim 60, wherein the pretreatment, treatment, and/or post-treatment with periodic
2 acceleration treats or prevents cramps, aches, soreness, spasms, and other maladies brought on by
3 exercise and/or other athletic activity.

1 69. The method of claim 57, wherein treatment using periodic acceleration assists or replaces the use
2 of corticosteroids and non-steroidal anti-inflammatory drugs (NSAIDs) in management of pain, injury,
3 muscle soreness, strains, and contusions in athletes.

1 70. The method of claim 57, wherein the provided periodic acceleration causes release of nitric oxide
2 from the vascular endothelium of the subject through activation of endothelial nitric oxide synthase (eNOS)
3 that in turn scavenges reactive oxygen species thereby diminishing or eliminating oxidative stress.

1 71. The method of claim 57, wherein the periodic acceleration treats and/or prevents cramps, aches,
2 soreness, spasms, and the like at least by diminishing any one of IL-1beta, IL-6, tumor necrosis factor or
3 other inflammatory cytokines and adhesion molecules through suppression of the activity of inducible nitric
4 oxide synthase (iNOS) caused by activation of endothelial nitric oxide synthase (eNOS) which is caused by
5 release of nitric oxide from the vascular endothelium of the patient.

1 72. The method of claim 57, wherein the periodic acceleration treats and/or prevents cramps, aches,
2 soreness, spasms, and the like at least by diminishing any one of IL-1beta, IL-6, tumor necrosis factor or
3 other inflammatory cytokines and adhesion molecules through suppression of nuclear factor kappa beta
4 caused by activation of endothelial nitric oxide synthase (eNOS) which is caused by release of nitric oxide
5 from the vascular endothelium of the patient.

1 73. The method of claim 57, wherein treatments of periodic acceleration are used in weight control of
2 the subject.

1 74. The method of claim 57, wherein treatments of periodic acceleration are used to ameliorate
2 metabolic syndrome, to improve sports performance, and/or to improve skeletal muscle pathology
3 associated with the cachexia of COPD and cancers in weight control of the subject.

1 75. The method of claim 57, wherein periodic acceleration is used to promote ventricular remodeling.

1 76. The method of claim 75, wherein periodic acceleration is combined with drugs that stabilize cardiac
2 mast cells and/or cardiac drugs that activate eNOS.

1 77. The method of claim 57, wherein periodic acceleration is used to treat and/or prevent atrial
2 fibrillation.

1 78. The method of claim 57, wherein periodic acceleration is used to treat and/or prevent complications from coronary bypass surgery.

1 79. The method of claim 57, wherein periodic acceleration is used to treat and/or prevent obstructive
2 sleep apnea syndrome commonly observed in patients with coronary artery disease.

1 80. The method of claim 57, wherein periodic acceleration is used to treat and/or prevent cognitive
2 deficits, learning deficits, and/or behavioral abnormalities in early cognitive impairment.

1 81. The method of claim 57, wherein periodic acceleration is used to treat and/or prevent Alzheimer's
2 disease, vascular dementias, Parkinson's disease, amyotrophic lateral sclerosis, Huntington's chorea,
3 Wilson's disease, suprabulbar palsy, and/or Tourette syndrome.

1 82. The method of claim 57, wherein periodic acceleration is used to treat and/or prevent cardiac
2 allograft vasculopathy.

1 83. The method of claim 57, wherein periodic acceleration is used to promote angiogenesis in
2 ischemic tissues.

- 1 84. The method of claim 57, wherein periodic acceleration is used to manage hereditary hemorrhagic
2 telangiectasia.
- 1 85. The method of claim 57, wherein periodic acceleration is used to treat and/or prevent migraine.
- 1 86. The method of claim 57, wherein periodic acceleration is used to treat the inflammation attendant
2 with prion diseases.
- 1 87. The method of claim 57, wherein periodic acceleration is used to manage the aging process.
- 1 88. The method of claim 57, wherein periodic acceleration is used to manage Sjogren's syndrome.
- 1 89. The method of claim 57, wherein periodic acceleration is used to manage the chronic phase of
2 Lyme disease.
- 1 90. The method of claim 89, wherein periodic acceleration is combined with antibiotics.
- 1 91. The method of claim 57, wherein periodic acceleration is used to treat Gulf War syndrome.
- 1 92. The method of claim 57, wherein periodic acceleration is used to improve mucociliary clearance
2 and surfactant production, and to minimize lung damage associated with usual positive pressure
3 mechanical ventilation.
- 1 93. The method of claim 57, wherein periodic acceleration is used to treat patients who have
2 corticosteroid resistance and asthma or corticosteroid resistance and inflammatory bowel disease.
- 1 94. The method of claim 57, wherein periodic acceleration is used to treat chronic otitis media.
- 1 95. The method of claim 57, wherein periodic acceleration is used to promote nail regeeration.
- 1 96. The method of claim 57, wherein periodic acceleration is used to in conjunction with cell free
2 hemoglobin transfusion in order to treat and/or prevent a nitric oxide deficit.
- 1 97. The method of claim 57, wherein periodic acceleration is used to treat radiation injuries.